

## Science takes centre-stage at COP24



Climate science took centre stage at the 24th annual Conference of the Parties to the UN Framework Convention on Climate Change (COP24) negotiations from 1 to 14 December in Katowice, Poland, with repeated calls for action to rein in global temperature increases or risk irreversible impacts.

“To waste this opportunity in Katowice would compromise our last best chance to stop runaway climate change,” said UN Secretary-General, António Guterres, “It would not only be immoral, it would be suicidal. This may sound like a dramatic appeal, but it is exactly this: a dramatic appeal,” he told delegates. “The IPCC Special Report is a stark acknowledgment of what the consequences of global warming beyond 1.5 °C will mean for billions of people around the world, especially those who call small island states home.”

The Intergovernmental Panel on Climate Change (IPCC) Chair Hoesung Lee presented the special report on 1.5 °C of global warming to a high-level plenary. The report shows that limiting global warming to 1.5 °C above pre-industrial levels implies reducing emissions of CO<sub>2</sub> by about 45% by 2030 – 12 years from now – compared with 2010 levels. Limiting global warming to 1.5 °C also means that global emissions of CO<sub>2</sub> would need to reach “net zero” around 2050.

Hoesung Lee was joined at the high-level session by WMO Secretary-General Petteri Taalas, who presented the latest findings on greenhouse gases and the state of the climate to assembled ministers and delegates. “We are expecting at 2% – 4% increase in global CO<sub>2</sub> emissions this year. If we are serious about the Paris Agreement, we need to see different numbers,” said Mr Taalas. The WMO Greenhouse Gas Bulletin reported that CO<sub>2</sub> concentrations in 2017 hit new records, levels not seen in at least 3 million years. The Global Carbon Budget, published by an international consortium of researchers during COP24, said that emissions are expected to rise 2% – 4% this year.

Underlining the pace of climate change, the National Oceanic and Atmospheric Administration (NOAA) published a new Arctic Report Card on 10 December. It said that the Arctic continues to warm at twice the rate of the rest of the globe, and may be contributing to extreme weather events in the northern hemisphere. Caribou and reindeer populations across the Arctic tundra have declined 56% from 4.7 million to 2.1 million animals over the last two decades, due to a loss of forage food, parasites, hunting, drought and climate warming. Sea ice remained younger, thinner and covered less area than in the past. Ice which is older than 4 years now makes up less than one percent of the ice pack.

## New Agreement to support low carbon, climate resilient development

WMO and the Green Climate Fund (GCF) have signed a formal agreement to work together to leverage WMO expertise on weather, climate and water to increase the effectiveness of GCF funded activities and support low carbon and climate resilient development.

Under a new Memorandum of Understanding (MOU), WMO will support GCF-accredited entities to maximize the benefits of their investments in hydrological and meteorological systems and associated climate information services. The aim is to bring the best available science into climate finance at a time when climate finance opportunities and climate risks are both increasing.

The agreement was signed by WMO Secretary-General Petteri Taalas and GCF Executive Director ad interim Javier Manzanares on 10 December after a ministerial level session on climate financing at COP24 in Poland.

The new partnership will further collaboration by:

- Exploring programme coordination opportunities to maximize the impact of investments in hydrological and meteorological systems and associated climate information services.
- Using WMO-led initiatives, such as the Global Framework for Climate Services (GFCS) and the Integrated Global Greenhouse Gas Information System (IG3IS), which focus on low emission, climate resilient and sustainable development, to increase the coherence and effectiveness of GCF investments.
- Ensuring that GCF-funded projects and activities that involve hydrological and meteorological services and systems benefit from WMO standards and regulations.

The new MOU with the GCF is a pragmatic example of effective collaboration between climate science and finance institutions to ramp up the effectiveness of climate action.

## World Bank and WMO commit to an Alliance for Hydromet Development

A new joint WMO/World Bank commitment was announced with the creation of an Alliance for Hydromet Development aimed at boosting climate and weather science and information for a resilient world. The initiative was announced on 12 October at an event on “Investing in a Climate Adapted World” held during the 2018 International Monetary Fund/World Bank Group Annual Meetings in Bali, Indonesia.

The Alliance brings together developing countries, climate finance and development partners, the private sector and knowledge institutions to jointly increase the effectiveness of efforts to strengthen capacity for the delivery of weather and climate information services in developing countries.

According to the World Economic Forum 2018 Global Risks Report, four of the five most pressing risks that confront our world relate to weather, climate and water. This translates into rapidly increasing demands for the provision of weather, climate and water information services. However, many national hydrometeorological (hydromet) institutions in developing countries face major performance challenges due in part to a fragmented landscape of resources for effective hydromet development.

The Alliance aims to move from fragmentation to coherence, and from marginal results to large-scale impact. Priorities include:

- Supporting developing countries in closing the capacity gap so that they can deliver on the increasing demand for hydromet information and services
- Fostering financial innovation and solutions that create new opportunities to accelerate and scale up successful business models for realizing the increased socio-economic benefits of hydromet services
- Ensuring the sustainability of investments and innovations beyond the lifetimes of individual projects

The envisioned Alliance, along with the World Bank Adaptation & Resilience strategy and the Global Risk Financing Facility (GRiF) launched at the same event, set an ambitious framework of action to ramp up climate resilience action.

WMO and the World Bank also signed a new framework agreement to strengthen and streamline their cooperation. This substantially simplifies the process by which World Bank borrowers engage with WMO to provide technical assistance within the context of World Bank-financed operations.

## Geneva Water Champions advance the Water Data and Peace Agenda

WMO, together with the Government of Germany and the Geneva Water Hub, held a Mobilization for Water Data and Peace event on 27 November. Representatives from the Permanent Missions in Geneva attended to help advance the water data and peace agenda

for sustainable development and to advocate for easily accessible and reliable water data to inform policy and decision-making in their national governments.

WMO Secretary-General Petteri Taalas opened the event by providing a global overview of climate change and its effects on rainfall and water resources. “We are very much interested in building better operational services to handle water resources and to deal with these issues. We have to adapt to climate change, and a very powerful way to adapt to climate change is to invest in weather, climate and water services,” said Mr Taalas. He also noted that the WMO Reform will boost the importance of water in the WMO framework.

In their opening remarks, François Münger, Director of Geneva Water Hub, and Danilo Turk, Chair of the Global High-Level Panel on Water and Peace, highlighted the central role of water in cooperation and peace. A panel discussion followed on the need for water data in the context of peace, moving in the intersection between policy, technology, diplomacy and awareness.

WMO presented three initiatives to contribute to the water data and peace agenda as well as the 2030 Sustainable Development Goals:

- The Global Hydrometry Support Facility (WMO HydroHub), which focuses on enhancing and innovating hydrological monitoring systems worldwide, as well as facilitating the free and open exchange of data
- The Global Hydrological Status and Outlook System (WMO HydroSOS), which uses available water data and modelling results to create a global reference of information on the current and future status of freshwater system
- The World Water Data Initiative which supports countries in water-related policy development to improve access to and use of water data by decision-makers

The discussion ended on a hopeful note: the initiatives are in place, all that is needed is to better organize the tools at our disposal and improve understanding to make the political process work.

## Strengthening collaboration of Ibero-American WMO Regional Training Centers

The Regional Training Centre (RTC) Directors of Ibero-American countries met in Lima, Peru, from 20 to 23 November to develop plans for increased collaboration. This was the first RTC meeting precipitated by the budding WMO Global Campus initiative. It was followed by a meeting in Santiago, Chile, with the Permanent Representatives (PRs) of the RTC hosting countries to complete the planning. The meetings, supported by the National Meteorology and Hydrology Service of Peru (SEHAMHI), National Agrarian University – La Molina (UNALM), the State Meteorological Agency of Spain (AEMET), and the CLIMANDES Project, included RTC representatives from 10 institutions, as well as PRs from Argentina, Brazil, Costa Rica, Peru, Spain and Venezuela.

RTC Directors examined their experiences of regional and international collaboration, and shared their principle strengths and priority needs, which can only be met through regional collaboration. A task team was tasked to study and implement a collaboration platform.

Regional training needs were narrowed down to four high priorities, then smaller teams developed initial training plans for each of the four areas:

- Use of new technologies and processes for weather forecasting and communications
- Implementing climate services for the agricultural sector
- Marine Weather Forecasting Regulations and Procedures
- Integrated management of extreme hydrometeorological events

At the meeting in Santiago, these project plans were presented to the PRs, refined and approved, and funding sources were identified.

A Declaration of the Permanent Representative of Ibero-American Countries with WMO RTCs, which was begun in Peru and describes intended actions to further improve their collaboration and development, was reviewed, revised and signed by the PRs. The meeting established a model that might benefit other WMO regions and subregions.

## **Integrated Global Greenhouse Gas Information System Engages Stakeholders**

WMO hosted the first Symposium and User Summit of the Integrated Global Greenhouse Gas Information System (IG3IS), one of the recent initiatives of the WMO Global Atmosphere Watch (GAW) Programme, from 13 to 15 November in Geneva. The event brought together technical developers of IG3IS tools and key users from a number of different sectors, including national emission inventory compilers, representatives of city and state agencies, and private sector stakeholders, to engage in dialogue. Stakeholders and users were invited to articulate their needs for data-driven GHG emission information, and the IG3IS service developers presented the existing capabilities that could serve these needs.

A number of actions were identified for the progression of IG3IS after the symposium:

- IG3IS will continue to cultivate active and intimate partnerships between its science team and the user communities it serves. This is essential for the co-development of methods and projects that will yield actionable information.
- IG3IS will focus on promoting new projects with stakeholders in nations, cities and businesses in the developing world, while continuing its successes in the developed world.
- The IG3IS science team will continue to promote technological abilities for creating projects on a wider range of GHG emission information.
- IG3IS will broaden its portfolio within the private sector by offering services in the agricultural, forestry, waste management, and other land use and change sectors.

This symposium was critical in initiating productive discussions between the IG3IS science team and stakeholders from national, urban, and private/industrial sectors. The system intends to use the information gathered from the symposium and follow-up discussions

to drive research and development for future products and services for the user community.

## **WMO joins global commitment to cut air pollution**

WMO has joined the global commitment to reduce deaths due to air pollution by two thirds by 2030. At the First World Health Organization (WHO) Global Conference on Air Pollution and Health, held in Geneva from 30 October to 1 November, WMO pledged to improve the quality and availability of pollution observations, enable provision of air quality forecasts and advisory services, and incorporate health impacts in key scientific assessments on climate and climate change. WMO co-organized the three-day event, which secured commitments from governments, health authorities, international agencies and the scientific community to act against air pollution.

Earlier this year, WHO and WMO signed an agreement to improve health outcomes through better weather, climate, atmospheric and hydrological services, and through improved monitoring and management of environmental health risks. This includes closer coordination between the communities that observe and predict air quality and health authorities that deal with the impact of human exposure to pollutants.

Specifically, WMO committed to:

- Enhance the availability and quality of observations of pollution such as black carbon, tropospheric ozone and atmospheric dust through the GAW network
- Include more information on health impacts in key authoritative reports such as the Annual Statement on the State of the Global Climate and assessments by the IPCC
- Lead global research and strengthen scientific knowledge on connections between air quality and climate, and develop science-based tools to support policy-making on air pollution and climate change mitigation, such as through the IG3IS
- Provide tools to reduce health risks by improving forecasts and warning and advisory services for sand and dust storms, and heatwaves
- Include air quality as part of integrated climate, health and urban services
- Include health-related service components in WMO training and capacity development programmes

## **Global Review of Regional Climate Centre Operations**

A WMO International Workshop on the Global Review of Regional Climate Centre (RCC) Operations was held from 12 to 14 November in Pune, India, and hosted by the Indian Institute of Tropical Meteorology (IITM). The Workshop brought together technical/organizational coordinators from all RCCs/RCC-Networks. Also present were leads of subsidiary bodies on climate matters of WMO Regional Associations, experts from other institutions generating real-time global climate prediction products, and international and regional partners, such as Copernicus Climate Change Service (C3S).

Participants reviewed the current performance of RCCs and agreed on a number of important recommendations for going forward. These included:

- Further developing the RCCs/RCC-Networks products and services, including revisions/updates to functions, products and criteria
- Incorporating new “demand-driven” services
- Revising technical documents and updating RCC establishment criteria and functions accordingly

Participants also recognized the central role of RCCs in strengthening collaboration and feedback mechanisms between the operational and research community, and identified complementary roles of RCCs with other emerging sources of climate information.

### **EUMETSAT-WMO joint workshop: satellite products for agrometeorology**

A Joint EUMETSAT and WMO Training Course on the Use of Satellite Data and Products for Drought Monitoring and Agricultural Meteorology was organized for Regional Associations II and VI at EUMETSAT Headquarters in Darmstadt, Germany, from 22 to 25 October.

Students from 11 countries participated in the workshop, covering:

- Operational services by EUMETSAT on Land Satellite Application Facility (SAF) including vegetation, evapotranspiration, forest/bush fire monitoring and risk evaluation (presented by Météo-Belgique); Climate SAF, including radiation monitoring (presented by EUMETSAT); and Hydrology SAF, including soil moisture products (presented by Vienna Technical University)
- Normalized difference vegetation index (NDVI) and Standardized precipitation index (SPI)-based drought monitoring and crop surveys presented by the All-Russian Agrometeorological Research Institute and the Russian Hydrometcenter
- ESA Earth observation capabilities and COPERNICUS services, including Sentinel satellites, vegetation and soil moisture monitoring

Participants discussed access to EUMETSAT and ESA products with trainers, and presented their remote sensing capabilities, on-going projects and research activities, as well as gaps and needs. They also focused on national needs and common issues reinforcing institutional cooperation between national services and establishing working arrangements with the instructors’ institutions. Central Asian

countries emphasized that the on-going hydromet modernization in the region funded by the World Bank and the Green Climate Fund, among others, requires revamping national capacities to respond to the growing needs in satellite data and products to supplement the in situ component.

More workshops are planned for the future with the Romanian Hydrometeorological Service expressing its willingness to host the next course.

### **Project Preparation Partnership Launched**

A Technical Workshop on Project Preparation for Transformational Climate Resilient Water Project Concepts in Africa for the Green Climate Fund (GCF) in Pretoria, South Africa, on 21 September attracted over 100 participants from 24 countries. The event Global Water Partnership (GWP), the Infrastructure Consortium for Africa (ICA), the African Water Facility (AWF), and the Africa Climate Change Fund (ACCF) co-organized the workshop, which was attended by GCF National Designated Authorities (NDAs), GCF Direct Access Entities (DAEs), and decision-makers in Water Ministries and Agencies. The African Development Bank (AfDB), the Climate Resilience Infrastructure Development Facility (CRIDF), and the Development Bank of Southern Africa (DBSA) hosted the event with technical inputs from the GCF Secretariat and WMO.

The workshop was organized in response to requests for support to strengthen the capacity of NDAs, DAEs, and Water Ministries and Agencies to prepare climate resilient water projects that meet GCF investment criteria. Participants reviewed the GCF mandate, funding requirements, investment criteria, and operational modalities and procedures for delivering climate finance through different windows. They also considered fit-for-purpose examples of project design and financing instruments. Countries shared their experiences and lessons in accessing GCF resources.

A Project Preparation Partnership for Climate Resilient Water Projects in Africa for the GCF was launched at the end of the workshop. It aims to provide a platform for countries to exchange knowledge and share lessons learnt in preparing, financing, and implementing water projects grows, in particular, in the context of the GCF. The Partnership provides a structured resource for African countries to continue accessing strategic and technical support to prioritize and prepare climate resilient water. Co-organizers and participants of the workshop, and relevant entities beyond, are invited to join the Partnership.

Partnership website: <https://www.gwp.org/en/GWP-SouthernAfrica/GCFPartners/>. To join contact [Julienne.Ndjiki@gwpsaf.org](mailto:Julienne.Ndjiki@gwpsaf.org)

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